

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-14. (Canceled)

15. (Currently Amended) An exhaust gas aftertreatment device for a motor vehicle, said device comprising:

a reforming unit that generates hydrogen by ~~at least one of~~ steam reforming and partial oxidation of hydrocarbons, said reforming unit being arranged directly, in [[a]] the full flow of exhaust gas, in a main exhaust gas stream of an internal combustion engine, whereby steam and residual oxygen that are necessary for reforming are derived from said exhaust gas and wherein the reforming unit is configured as an autothermal reforming reactor;

an NO_x storage catalytic converter arranged in the main exhaust gas stream downstream of the reforming unit said NO_x storage catalytic converter being operable to remove NO_x from lean exhaust gas by storing NO_x as the lean exhaust gas flows through NO_x storage catalytic converter, and to generate N₂ by reducing stored NO_x when reducing exhaust gas flows through the NO_x storage catalytic converter;

an SCR catalytic converter arranged in the main exhaust gas stream downstream of the NO_x storage catalytic converter said SCR catalytic converter being operable to reduce NO_x contained in the exhaust gas using NH₃ that has been generated by the NO_x storage catalytic converter, and a secondary injection device arranged upstream of the reforming unit being operable for post-engine introduction of reducing agents into the exhaust gas upstream of the reformer.

~~an exhaust gas recirculation arranged downstream of the reforming unit.~~

16. (Previously presented) The exhaust gas aftertreatment device as claimed in claim 15, further comprising an oxidation catalytic converter that is arranged downstream of the SCR catalytic converter.

17. (Previously presented) The exhaust gas aftertreatment device as claimed in claim 16, further comprising a three-way catalytic converter that is arranged immediately downstream of the reforming unit.

18. (Previously presented) The exhaust gas aftertreatment device as claimed in claim 15, further comprising a three-way catalytic converter that is arranged immediately downstream of the reforming unit.

19. (Previously presented) The exhaust gas aftertreatment device as claimed in claim 15, wherein the reforming unit comprises a catalytically active particulate filter.

Claims 20. – 24. Cancelled

25. (Withdrawn-Previously presented) An exhaust gas aftertreatment device for a motor vehicle, said device comprising:

a reforming unit that generates hydrogen by at least one of steam reforming and partial oxidation of hydrocarbons, said reforming unit being arranged directly, in a full flow of exhaust gas, in a main exhaust gas stream of an internal combustion engine, whereby steam and residual oxygen that are necessary for reforming are derived from exhaust gas;

an exhaust gas catalytic converter, arranged in the main exhaust gas stream downstream of the reforming unit, said exhaust gas catalytic converter being operable to perform the functions of an NO_x storage catalytic converter and an SCR catalytic converter, and

an exhaust gas recirculation arranged downstream of the reforming unit.

26. (Withdrawn) The exhaust gas aftertreatment device as claimed in claim 25, further comprising an oxidation catalytic converter arranged downstream of the exhaust gas catalytic converter.

27. (Withdrawn) The exhaust gas aftertreatment device as claimed in claim 26, further comprising a three-way catalytic converter is arranged immediately downstream of the reforming unit.

28. (Withdrawn) The exhaust gas aftertreatment device as claimed in claim 25, further comprising a three-way catalytic converter is arranged immediately downstream of the reforming unit.

29. (Withdrawn) The exhaust gas aftertreatment device as claimed in claim 25, wherein the reforming unit is designed as a catalytically active particulate filter.

30. (Withdrawn-Previously presented) An exhaust gas aftertreatment device for a motor vehicle, said device comprising a reforming unit that generates hydrogen by at least one of steam reforming and partial oxidation of hydrocarbons, wherein:

the reforming unit is arranged directly, in a full flow of the exhaust gas in a main exhaust gas stream of an internal combustion engine;

steam and residual oxygen that are necessary for reforming are derived from exhaust gas;

a DENOX catalytic converter arranged in the main exhaust gas stream downstream of the reforming unit, and

an exhaust gas recirculation arranged downstream of the reforming unit.

31. (Withdrawn) The exhaust gas aftertreatment device as claimed in claim 30, wherein the reforming unit comprises a catalytically active particulate filter.

32. (Currently Amended) A method for operating an exhaust gas aftertreatment device, the method comprising:

using hydrogen to reduce NO_x in exhaust gas from an internal combustion engine of a motor vehicle by way of a catalytic converter;

generating the hydrogen onboard the motor vehicle in the full flow of exhaust gas by at least one of steam reforming and partial oxidation of hydrocarbons in an autothermal reforming process ; wherein steam and residual oxygen that are necessary for the reforming are supplied from the exhaust gas;

the reforming is performed by a reforming unit arranged directly in full flow of exhaust gas, in a main exhaust gas stream from the internal combustion engine; and setting a quantity of fuel which is fed to the reforming unit via a secondary injection into the full flow of exhaust gas upstream of the reformer

~~supplying reformat to the engine, by way of an exhaust gas recirculation operably arranged downstream of the reforming unit.~~

33. (Previously presented) The method as claimed in claim 32, further comprising setting the temperature of the reforming unit by an air/fuel ratio and determining oxygen concentration in the exhaust gas using a wide-band lambda sensor.

34. (Previously presented) The method as claimed in claim 33, further comprising operating the reforming unit at an air/fuel ratio in the range from approximately 0.5< λ <1.0.

Claims 35-37 Cancelled

38. (Previously presented) The exhaust gas aftertreatment device of claim 15 further comprising a catalytic converter arranged closed to the engine.

39. (Previously presented) The exhaust gas aftertreatment device of claim 15 wherein the NO_x storage catalytic converter is configured to generate NH₃ by reduction of accumulated NO_x with H₂.

Claims 40-41 Cancelled

42. (New) The method of claim 15 further comprising supplying reformat to the engine, by way of an exhaust gas recirculation operably arranged downstream of the reforming unit

43. (New) The method of claim 32 further comprising supplying reformat to the engine, by way of an exhaust gas recirculation operably arranged downstream of the reforming unit